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The Analysis of Project Finance: a Case Study of Kazakhstan Caspian Transportation System Project

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Summary:

Although project finance is a large and fast growing field in finance, there has been very little academic research in that area. The main reason for this deficit is that it is a relatively new sphere in finance and it is difficult to access the information about the implementation of projects from the companies that implement them. This project will provide an overview of how companies finance large infrastructure projects through a case study of the Kazakhstan Caspian Transportation System (KCTS) project. The project will elucidate the current situation in project finance in the oil sector of Kazakhstan; the risks and considerations related to the implementation of large infrastructure projects in emerging markets and recommendations on how to approach the financing and structuring of the KCTS project. The KCTS project has a strategic importance for Kazakhstan as it will create a single energy transportation corridor from Asia to Europe towards the Mediterranean Sea allowing diversification of Kazakhstan export routes for oil thus securing substantial economic benefits. The key feature of the KCTS project is its strong linkage with the Kashagan oil field and transportation systems including an international oil pipeline Baku-Tbilisi-Ceyhan. In addition, the KCTS project's sponsors are national companies of Kazakhstan and Azerbaijan. Therefore, it is important to consider the issues that should be addressed before the financing can be finalised: acknowledge the interdependency between all participants of the Trans-Caspian Transportation system; ensure guarantees of oil volumes shipped through the KCTS; address all the risks of the project; consider the possibility of participation of shippers in equity stakes and arrange additional funds for any contingencies. The financing structure of the project depends on several aspects inherent in the project: risks, political issues, the stance of the sponsor company, the current situation in world financial markets and the financial and political situation in a host country and the linkage of the infrastructure project with other stakeholders.

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The analysis of project finance: a case study of the Kazakhstan Caspian Transportation System Project

1 Introduction

Project finance is a relatively new but large and fast growing field in finance. Culp and Forrester (2010, p.522) define project finance as ***"the extension of credit to finance an economic unit where the future cash flows of that unit serve as collateral for the loan"***. Although some type of limited recourse financing of standalone projects has been available for centuries (Kensinger and Martin, 1988), the modern history of project finance began in the 1970s with the development of the North Sea oil and gas fields (Hainz and Kleimeier, 2004). Despite its size there has been very little academic research into project finance (Esty, 2003). Esty (2004) argues that one reason for studying project finance is that it is firstly a particularly interesting and effective tool for highlighting the impact of financial structures on the value of a company and, moreover, illustrates why financial structures matters. The financial structure of an asset directly affects whether that asset obtains funds and how much it is worth. Therefore, Esty believes that project finance has the potential to broaden and develop new financial theories and in practice, is an increasingly important financing vehicle.

Esty (2004) suggests that one reason why so little research has been conducted on project finance is because of difficulties accessing detailed information and problematic undertaking quantitative research in this area. As most project companies are private, only limited information about projects is available to the public. In terms of statistical analysis, globally there are about 300 projects every year but only 40 to 50 of them cost more that $500 million (ibid). These projects often have long lives and many specific characteristics attributed to the country, industry, and management. Consequently, statistical tests are unreliable and the results from one project are not applicable to other projects (ibid). In this respect, the Kazakhstan Caspian Transportation Project (KCTS) case study will contribute to the literature on project finance by examining the operation of project finance with particular reference to the oil and gas sector in developing countries.

Project finance is often used to finance industrial projects such as oil fields, pipelines, mines and infrastructure projects. The amount of global project finance lending in 2010 made up $167 billion, while the demand for the next 20 years is expected to be $40 trillion (KPMG, 2010). Nowadays, the demand for capital and infrastructure investment is growing particularly in developing countries. In Kazakhstan the oil and gas sector are key industries and oil production is projected to increase dramatically in the next 10 years meaning that new projects are emerging requiring huge investments. Given the demand for investment and the growing importance of project finance as a financing tool, corporate managers, bankers and government officials need to understand what project finance is, why it creates value and how to manage it (Esty, 2004).

The aim of the following management project is to examine how big infrastructure projects can be financed in order to provide recommendations to KMG-TransCaspiy Limited Liability Partnership about financing of the Kazakhstan Caspian Transportation System (KCTS) Project. Therefore, the management project will focus on the principles, structure, and possible sources of finance for project financing and will provide relevant case studies related to financing big infrastructure projects. Finally, the KCTS case study will be presented followed by considerations and recommendations for the KCTS project financing.

According to Esty (2004) project companies are "strategic research sites" for those interested in learning about how the structural attributes of project finance affects managerial incentives and asset values. ***"Standalone project companies are attractive research sites because they provide a relatively clear window into the process by which managers make important financing and structuring decisions"*** (*ibid*, p.214). Moreover, large projects such as KCTS, which has an estimated total cost of $4.9 billion are more interesting than smaller projects as they allow for an assessment of how managers make investment and financing decisions. In such cases managers have greater incentives and greater risks: there is considerably more money at stake and their personal wealth and professional reputation are on the line (Esty, 2004).

The management project will be useful for researchers and financial specialists who are interested in project finance in the Kazakhstan oil sector. It will also be

relevant for a group of the companies within the national holding NC KazMunaiGas and other companies that fulfil investment projects in similar industries and will provide a broader view on decision making regarding the structure of the project.

2 Research Methodology

Hammersley (2011) states that methodology is an essential part of scientific research both at the practical and theoretical levels. Hesse-Biber and Leavy (2011) claim that methodology is a component of social reality that goes further than what has been empirically examined. Depending on the research goal(s) or question(s), there are three research methods: quantitative, qualitative and mixed (both quantitative and qualitative) (Tashakkori and Teddlie, 2002). Mason (1996) defined qualitative research as based on a philosophical stance which is concerned with how the social world is interpreted, understood, experienced or produced. Methods of data generation in qualitative research are flexible and sensitive to the social context in which data are collected. The aim of qualitative research is to create fundamental understandings on the basis of rich, contextual, and detailed data. Qualitative research employs three methods of data collection:

1. Observations – the method where the researcher observes and takes notes about the behaviour and actions of individuals at the research site.
2. Interviewing – the method where the researcher conducts in-depth interviews to explore research question.
3. Documents and visual data – the method where the researcher uses documents and visual materials.

Quantitative research is used to explain phenomena through numerical data that are analysed using mathematically based methods. Quantitative research can be conducted using experimental and non-experimental methods. The first is based on experiment and common for scientific research, while the second is based on surveys and mostly used in social sciences (Muijs, 2004).

'Case study is not a method or methodology but rather an expansive field within the qualitative paradigm' (Hesse-Biber and Leavy, 2011, p.256). Case study is an in-depth examination from different perspectives of the complexity and uniqueness of a specific project, system, or institution in a real life context. The aim of case study is to generate in-depth understanding of a particular topic (*ibid*).

This management project is based on a qualitative research method and presents a case study as a way of investigating and examining how and why companies use project finance, how big projects can be financed, what are possible financing structures and sources of project finance, and what considerations companies should address before implementing big projects. This study is done with specific reference to the Kazakhstan Caspian Transportation System project. The case study approach is applied in the project as it allows the researcher to explore in-depth the complexity and specificity of project finance using experience of companies in financing large infrastructure projects and then present the experience of Kazakhstani oil transportation company which is currently undertaking the implementation of a massive integrated infrastructure project. To explore research questions documents and visual data were used as well as interviewing of the key managers in the field was conducted. The practical part of the management project is built on the basis of data provided mainly by the project company KMG-TransCaspiy LLP and interviews conducted with the Executive Director of KMG-TransCaspiy LLP, manager of sponsor company NC KazMunaiGas, and manager of affiliated company KasMorTransFlot. The information that was obtained from the interviews is provided in the Appendix 2.

3 Literature Review

3.1 What is Project Finance?

Currently, there are few studies of project finance (Esty, 2004, Moutier, 2010). However, different definitions of project finance are provided. For instance, Finnerty (1996, p.2) defines project finance as:

> ***"the raising of funds to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return of and a return on their equity invested in the project."***

Fabozzi and Nevitt (2000, p.1) however, define it as:

> ***"A financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan."***

Esty (2004, p.25) defines project finance more specifically:

> ***"Project finance involves the creation of a legally independent project company financed with nonrecourse debt (and equity from one or more sponsors) for the purpose of financing a single purpose, industrial asset where nonrecourse debt means that debt repayment is made from the project company only, not from any other entity."***

Culp and Forrester defined project finance as provision of a credit to an economic unit where the future cash flows of that project will be the only source of repayment for the credit (2010). According to Moutier (2010) isolation of resources imposes a direct risk on lenders with regard to the future profit of the project. The traditional approach of financing internal company projects assumes that the project is one of many other assets in the company's portfolio and projects as a whole generate the cash flows, which are used to repay the

loans. Thus, risks are combined and diversified as profitable projects can compensate unprofitable ones (Brealey *et al*, 1996).

Gearing in project finance is usually very high as debt can reach 80% or 90% of the total investment. The fundamental principle is that income risk is carried by the loan providers. Loans can be either "without recourse" or "with limited recourse" to the concession company's shareholders. Thus, lenders may not fully lessen their risks because they are dependent on the decisions of shareholders. Consequently, they must build complex contractual schemes to secure their interests (Moutier, 2010). On the other hand, Shah and Thakor (1987) suggest that project finance allows high gearing for risky projects, as it decreases information asymmetries between concessionaires and lenders. This occurs because the creation of a special-purpose vehicle isolates the project assets from its parent company, thus making it possible for loan providers to access detailed information with regard to the project.

Shah and Thakor also proposed that project finance is a form of "dequity" (a combination of the words, "debt" and "equity"), dequity follows standard debt "rules" (for instance: debt is serviced at definite dates); but in the event of bankruptcy risk, senior managers may suspend the rules temporarily in order to maximize the firm's value. John and John (1991) claimed that project finance is advantageous when managers underinvest because of risky debt. Their theoretical analysis found the optimal leverage for a company. The model showed that a project financing arrangement, where the debt is optimally distributed between the sponsor company and the new venture, increases the value of the firm by reducing the agency costs and providing tax shields. Their model also shows that advertising a project finance programme may increase the sponsor company's share price.

Kleimeier's (1993) empirical analysis challenged John and John's conclusions about share price. Her study concluded that the announcement of project finance deal does not significantly affect the sponsor's share price. She further stated that banks are sufficiently compensated for the risks they bear in lending without recourse. Kleimeier and Megginson (2000) concluded that margins in project finance are lower than margins in syndicated loans contracted for mergers and acquisitions and, on average, less than margins of syndicated loans. Brealey *et al* (1996) believes that project finance is a response for

agency problems that occur from the different and sometimes conflicting interests of project participants. The high gearing of project finance deals can be attributed to low bankruptcy costs of a project company. The decision to place the debt on the project company's accounts can be explained by the difficulties and costs relating to the correct distribution of the free cash flow or the existence of several sponsors with conflicting interests.

3.2 Project Finance in the Oil and Gas Industry

According to Culp and Forrester (2010), oil and gas projects are second only to power projects for using project finance loans. In total, oil and gas project finance loans constitute 15 to 20 per cent of all projects (ibid, p.523). Traditionally, oil and gas companies have funded projects by internal cash flows or by corporate borrowing from commercial lenders. Nowadays, particularly after the financial crisis of 2008-2009, access to traditional sources of capital has become extremely difficult. According to Milbank *et al* (1996), as profits in downstream projects (sale of crude oil) have declined companies are not as willing to undertake public offerings. Although the tightening credit requirements have made corporate borrowing less available the demand for financing is still high. In these conditions of a growing demand for funds and a shrinking availability of investment capital, project finance has become an alternative option for oil and gas projects. However, interest in project finance is not driven solely by the search for alternative financing. Project finance can also be an instrument for the allocation of risks that are associated with emerging market projects. As most oil and gas companies in developing countries are state companies, there is a lack of available governmental funds in this sector coinciding with a huge demand for capital investments. Therefore, governments are now allowing private ownership or long-term leases of major oil and gas projects and infrastructure developments. Nowadays, sponsors are using project finance to fund projects in the public sector (Milbank *et al*, 1996).

3.3 Project Participants and Their Objectives

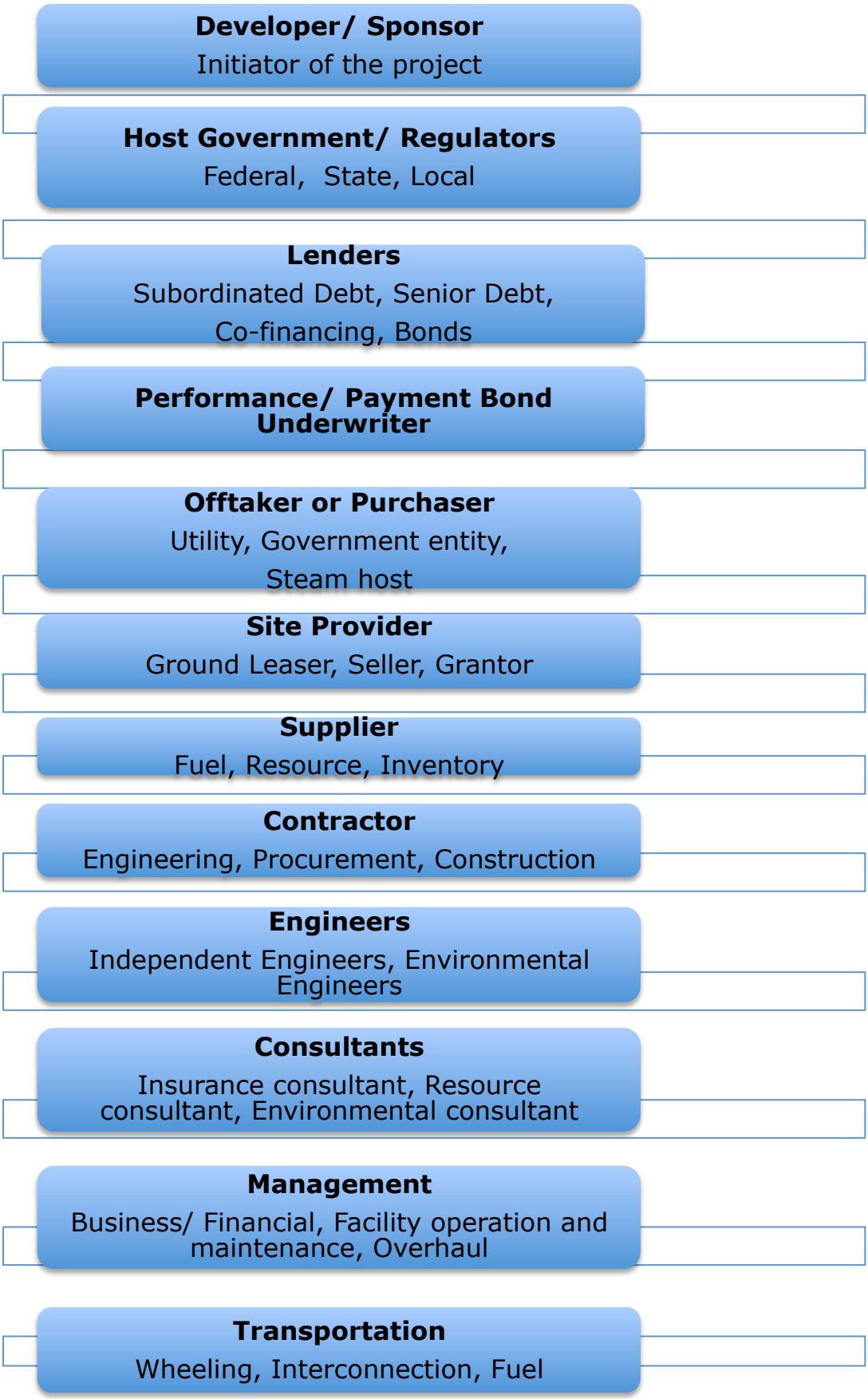
The main participants of the project finance who have a major stake in the project are lenders, sponsors and host governments in international projects. The detailed list of project participants is presented below in Figure 1.

Milbank et al (1996) suggest that it is important to understand the objectives of the main stakeholders in the project. As the future cash flows of the project will be the only source of repayment in project finance, investors look to the creditworthiness and merits of the project, rather than to the project sponsors. Most sponsors aim to obtain an attractive rate of return on their investment. However, because in project finance lenders bare higher risk, they expect higher risk return rate. To attract private foreign investment, host countries will have to accept greater returns for the foreign investor than those that are available in the domestic market. However, such sponsors are advantageous for lenders as they are ready to support the execution of a project. Many participants such as suppliers, have short-term goals to secure contracts. Although these participants can invest in a project, their original incomes lie in securing related supply contracts and therefore, their motivation to the long-term stability of the project can be modest.

The goals of governments include the following:

- broadening sources of financing in order to develop capital intensive projects;
- relieving financial and administrative burdens on governments;
- enhancing the development of new technologies;
- training host country citizens in skilled jobs;
- creating competition which leads to lower prices for new suppliers;
- creating sales opportunities for domestic and local business (ibid).

Figure 1: Participants in Project Financing



Source: Milbank *et al* (1996) pp. 5-6.

3.4 Structure of Project Finance

Milbank *et al* (1996) states that project financing starts with a single-purpose company formed by the sponsors of the project with the aim of owning and operating the project. Due to the risks involved in modern projects, project companies form a consortium or joint venture of sponsors whose major assets are the project, including real property, mineral rights, equipment, contractual rights, shares in the project company, licences and other governmental consents. Investment in the project is made to the project company itself and secured by the assets of the project company.

Sometimes project sponsors may establish a project such as a "tenancy-in common" where each sponsor has a share in the project and the profit of the project is divided proportionately according to the share invested. A tenancy-in-common vehicle is not an independent organisation and cannot independently borrow or be involved in other contracts. Nonetheless, such projects can be financed by entering into similar credit agreements to borrow its share of debt finance from the same lenders (ibid). Lease structure is another type of project finance structure, where equity investors own the facility and lease it to the project company. This kind of structure provides tax benefits separating ownership from control of the project, and reducing the project's capital costs by assigning tax benefits to an equity investor. During the lease term, the lessee (the project company) has the right to the residual cash flow after the payment of lease rent. At the end of the lease term, the lessee may exercise his option to buy assets if he had previously negotiated such an option.

Synthetic lease or off-balance sheet financing is another form of non-recourse financing. Under this type of structure a special purpose entity (project company) acquires or owns the facility and leases it to a producer for a long-term lease. The project company can issue notes to investors to finance acquisition while the operating lease guarantees the loan. The rent payments under the lease correspond to interest payments on the investment of the lessor. The synthetic lease enables the producer to deduct depreciation and interest payments for tax purposes and treats rental payments as operating expenditures, not as debt or capital expenses (Milbank *et al*, 1996).

There are royalty trusts and master limited partnerships that can be used specifically in the oil and gas sector. Under royalty trust structure oil and gas

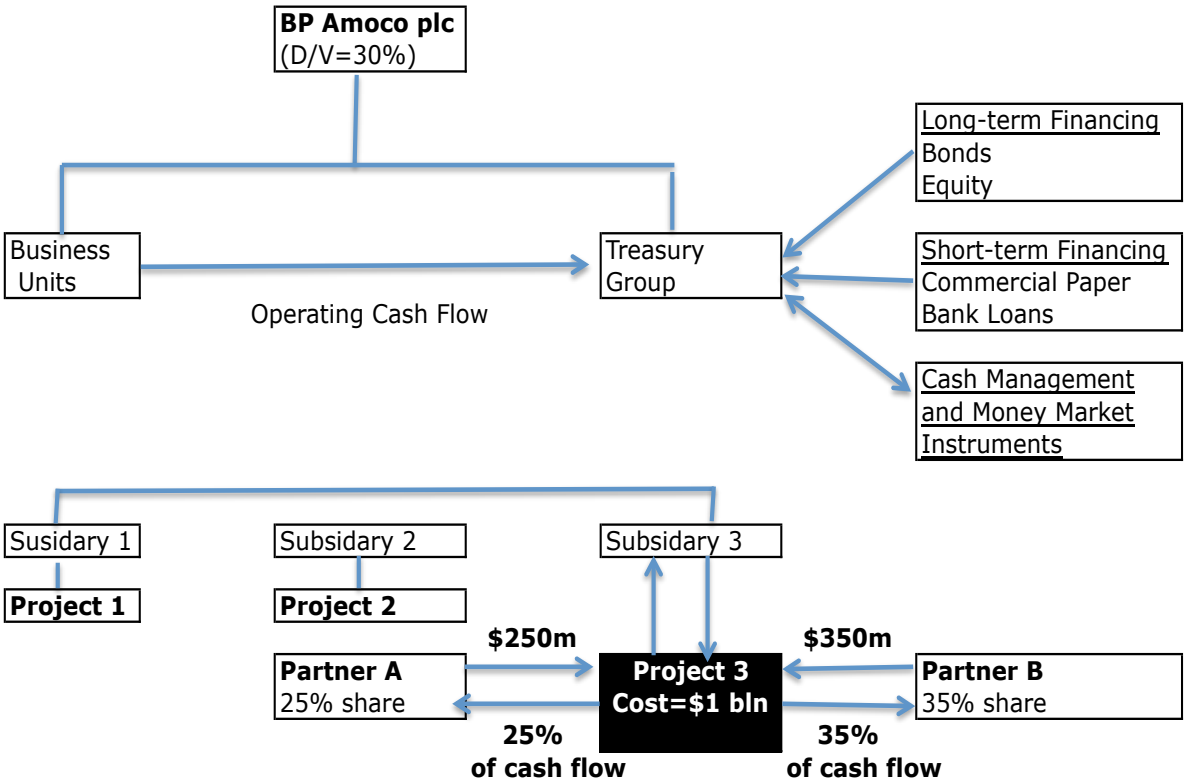
companies form a trust from their reserves. Cash flows from the trust may be directed to pay dividends to trust participants. Investors receive yields linked to oil and gas prices, which formulate the amount of cash flow from the reserves in the trust, but without the risks of new drilling. Interest in master limited partnerships can be represented by depository receipts traded in the secondary market, which makes them more liquid than royalty trusts (ibid).

Nwachukwu (2000) presented two main methods of capital project financing. The first is "contractor financing" or "turnkey project finance", when the contractor is required to raise the funds, manage the project's execution and deliver the accomplished project to the owner. The second method, part-debt financing where the owner borrows part of the money required, and another part provides from his equity capital.

3.5 The Difference of Project Financing from Corporate Financing

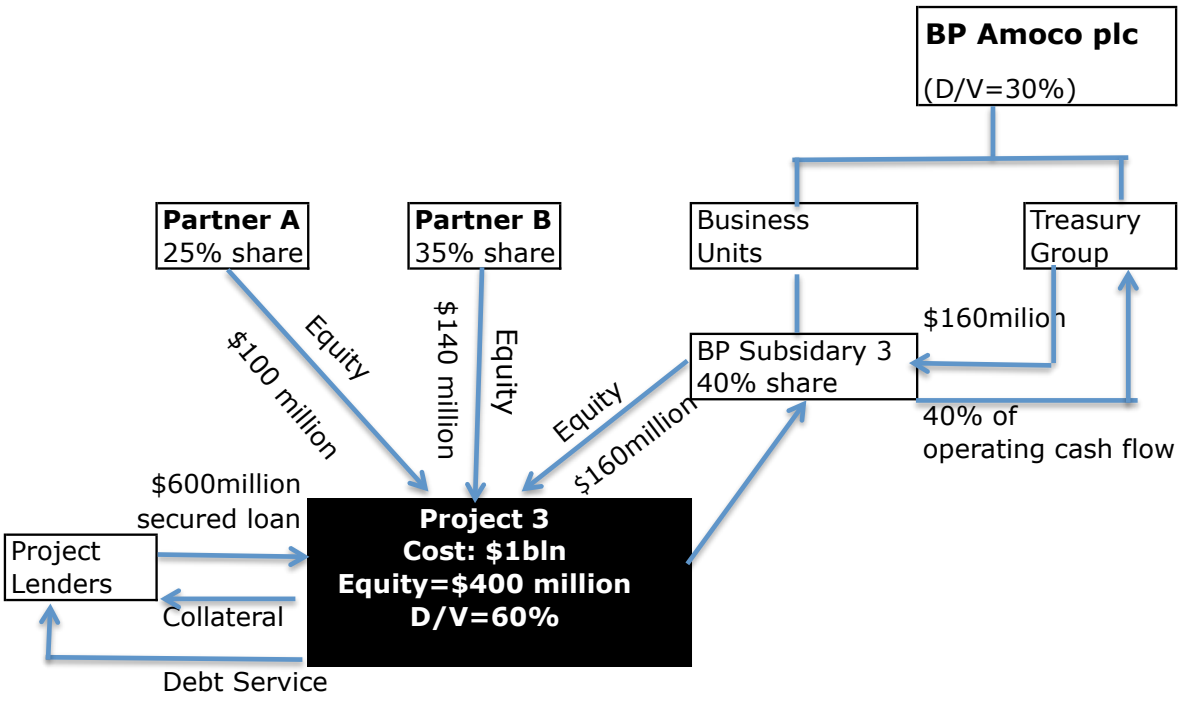
In order to illustrate the difference between corporate and project financing, BP Amoco financing structures from Esty's case study (2004) are presented (Figure 2).

Figure 2: BP Amoco Financing Structure



Source: Esty (2004), p.141.

Project Financing Structure



Source: Esty (2004), p.142.

Before investing $1 billion into oil field development BP Amoco had firstly analysed what type of structure to use and what the benefits were of using the project finance model instead of the traditional model. In the first diagram the corporate finance model is shown and in the second – the project finance model. The key difference between project and corporate financing is found in their contrasting organisational structures. Project financing involves a separate legal incorporation (special purpose vehicle), which allows asset securitization and risk localization within the project. By contrast, in corporate financing the project is financed within the company, in a portfolio with other company projects and the repayment of funds (debt or equity) is drawn from the cash flows of all the company's projects. In corporate financing, the risks lie with the company itself while in project finance the risks are borne by the lenders.

Another important feature of project financing is its limited or non-recourse basis, which enables sponsors to be not responsible for debt service in case of project failure. Moreover, project financing uses off-balance sheet accounting, which does not affect the project company's financial standing, whereas in traditional financing debts are reflected on the balance sheet damaging its creditworthiness. Capital structure in project finance also differs from traditional

financing. In project financing, the company may have very high gearing (debt-to-equity ratio) compared to public corporations. According to Esty's study (2003), the average company project has a book value debt-to-total capitalization ratio of 70% compared to 30% for similar-sized corporations. However only a few project companies have a gearing lower than 50%, while 30% of public corporations have a gearing less than 5%.
Other characteristic features of project financing are summarised in the next section focusing on the advantages of project financing.

3.6 Advantages and disadvantages of Project Finance

Project finance is particularly beneficial for capital intensive projects such as power generation, telecommunications, infrastructure and oil and gas projects. Milbank *et al* (1996) summarised the advantages of project finance:

1. It provides financing on a limited or non-recourse basis, where sponsors are relieved from their contractual obligations to service the debt in case of the project's default.
2. Project finance allows higher gearing than traditional corporate lending. In corporate borrowing, the risks and activities of a borrower are located in one portfolio and risks are not linked to a particular project. This can impact on the debt capacity of the borrower. In project finance, risks are isolated in a specific project and cash flow is analysed with regard to that project. High gearing can reduce the cost of capital by lower costs of borrowing compared to the cost of equity, tax-deductible interest compared to taxable returns on equity.
3. Project finance uses off-balance sheet accounting of project debt. This permits sponsors to undertake projects without damaging their creditworthiness or causing restrictions on borrowing or other financial covenants such as debt-to-equity ratio or debt-to capitalisation ratio.
4. Project financing may authorise sponsors to escape restrictions under their contract or based on regulatory limitations. Lenders can also avoid possible legal restrictions with regard to borrowers to whom they are eligible to lend, by lending to the project company rather than to its sponsor.
5. Project finance is an efficient tool for allocating risks among participants of the project. In corporate lending, concerns about a borrower's balance sheet may result in a refusal to loan. On the other

hand, in project finance risks can be shifted to more credible sponsors through different structures. Lenders may be willing to provide a loan after properly measuring and defining risks, particularly for projects where the size and concentration of the assets in a project are so assured or where syndicate of banks share lender's risks Milbank *et al* (1996).

On the other hand, Milbank *et al* (1996) also argued that the primary disadvantage of project financing is its complexity. The allocation of risks and security in project financing requires intensive negotiating and complicated legal procedures. This process can be time consuming and has high transaction costs. Esty's research (2003) found that creating a stand-alone project company takes from 6 to 18 months and involves considerably higher transaction costs than financing an asset on an existing balance sheet. Klein *et al* (1996) concluded that transaction costs for infrastructure projects constitute 3% to 5% of the total investment, but can be as high as 10% for smaller and unique or first-of-a-kind projects. Esty (2003) highlighted a further drawback of project financing. Project debt is often more expensive than corporate debt because for creditors, project financing is riskier than traditional financing. Spreads (promised yields) may be 50 to 400 basis points higher (Lewellen, 1971). In addition, based on the BP Amoco case study (Esty, 2004), BP Amoco's finance team recommends using internal corporate funds to finance new projects except in three very particular circumstances:

1. Mega projects: those projects that are big enough to cause harm to the firm's income and debt rating.
2. Projects in politically volatile areas: projects exposed to a high chance of war, strikes, sabotage, lack of property rights, expropriation or currency inconvertibility were suggested to use project finance as they benefited from outside lenders. The reason is that host governments would be less likely to take detrimental actions towards the project, as this would negatively affect access to future credit from the international financial community. In many high risk countries, commercial banks would not lend unless one of the multilateral lending agencies or Export Credit Agencies was involved in the deal.
3. Joint ventures with heterogeneous partners: to manage the financial needs of partners with weaker credit capabilities (Esty, 2004).

3.7 Sources of Project Financing

Nwachukwu (2000) notes that there are many factors affecting investors' and developers' decisions over the most appropriate source of finance for capital projects. The main factors include: the amount of capital required; the period for which the capital will be needed; the purpose in which the money will be used; the risks of the project; the period in which the project will be fulfilled and the rate of interest before and after the completion of the project. Hoffman (2008) classifies the key sources for project financing: banks and institutional lenders; the equity markets; the bond markets; Rule 144A Debt Placement (U.S.); investment funds; multilateral agencies and development banks; subordinated debt; development loans; and financing from project participants. Milbank *et al* (1996) discusses the main sources of project financing: equity, mezzanine financing, senior debt and capital markets. These are outlined below:

3.7.1 Equity

According to Milbank et al (1996) lenders usually require project sponsors to contribute a significant portion of the capital invested in the project. The size of the equity that lenders require will depend on various factors such as the nature of a specific project, the particular risks involved and what the finished product is. The typical range of lenders requirements varies between 5-25% equity investment but can reach a maximum of 60% in high risk projects. Requiring sponsors to contribute equity incentivizes sponsors to ensure the project is a success and reduces the pressure placed on project revenue due to debt servicing. Advancing capital to the project through a subscription for shares in the project company is a common form of equity contribution. Shares in the company may be issued as equity claims (common stock) or as debt (bonds and other debt instruments). The former means that debts have to be paid before the claim holder can receive any payments based on earnings while the latter pays out a fixed amount of payment. Equity claims may also be structured as convertible debt, so that the claim holder can convert debt claims into equity. Alternatively to capital contributions, sponsors can make subordinated loans to the project company as equity or a combination of subordinated loans and equity. The former is advantageous compared to capital contributions from several angles.

- Tax treatment: there are fewer tax consequences for repaying

subordinate loans compared to the repayment of capital. Interest on debt is also classed as tax deductible income.

- Liquidity: debt may be more liquid than equity.
- Control: when structured with equity kickers[1] subordinated debt gives a project sponsor greater control over the timing of its accounting and therefore the tax implications. Unlike dividend payments on shares, which are made at the project company's discretion, debt repayments are scheduled. Also debt repayment tends to incur fewer restrictions on behalf of the project company compared to dividends. While companies are compelled to repay debt interest declaring dividends and similar distributions is also discretionary allowing creditors greater scope to control the amount and timing.
- Regulatory hurdles: some investors including government entities may be barred from owning shares of, or taking an equity position in, a project company. However they may also be allowed to make subordinated loans to the company (Milbank *et al.* 1996).

Subordinated loans are generally unsecured and subordinated to senior lenders. Project sponsors rights surrounding the repayment of subordinated loans may also be assigned to senior lenders as collateral security. Equity is generally provided by project sponsors though can also be supplied by insurance companies who may provide subordinated debt or quasi-equity, or by multilateral lending agencies with the ability to make equity investments (*ibid*).

3.7.2 Mezzanine Financing

Mezzanine finance is unsecured[2] debt or preference shares[3] that offer a high return with a high risk. Mezzanine finance is ranked lower than secured debt but above equity (Arnold, 2008). Milbank *et al* (1996) suggested that mezzanine

[1] Equity kicker (sweetener) – the attachment to a bond or other debt finance of some rights to participate in and benefit from a good performance, for example, to exercise an option to buy shares (Arnold, 2008).

[2] Unsecured – a financial claim with no collateral or any charge over the assets of the borrower (Arnold, 2008).

[3] Preference shares – shares that entitle the holder to a fixed rate of dividend but not guaranteed. Holders of preference shares precede the holders of ordinary shares, but follow bond holders and other lenders, in payment of dividends and return of principal (Arnold, 2008).

financing is typical to many project financing structures. Project financing structures use mezzanine financing whereby another tier of debt is added to the traditional mix of equity and senior debt. Lower rates of repayment makes mezzanine finance attractive to project sponsors and it may appeal to more risk averse investors as it is relatively secure and offers lower repayment rates than equity. It has been argued that the additional level of debt can make debt servicing more effective and may help secure long-term project financing by reducing the ratio for both equity and senior debt. Mezzanine financing sources can include finance companies, venture capitalists and insurance companies. This form of financing has become more available to companies involved in project financings and investment funds have been formed to specifically provide mezzanine financing for infrastructure projects.

Mezzanine financing through subordinated loans may be structured with convertible debt, warrants and options which will allow its holder to convert the debt – or part of it – into capital shares in the project company. Warrants allow their holders an option to call on the issuer of the shares to purchase the shares at a premium while options permit the holder to purchase shares in the project company (ibid).

According to Arnold (2008), mezzanine debt usually offers interest rates "two to nine percentage points more than that of senior debt" (p.436). Mezzanine finance is more expensive than bank borrowing, but cheaper than equity. In addition, it enables companies to raise large amounts of money without losing control on business. Unlike bank lending, mezzanine is often based on interest-only mortgage without capital repayments until the end of the loan. Finally, mezzanine lenders are ready to lend against the firm's future cash flows, rather than insisting on security (collateral).

3.7.3 Senior Debt

Senior debt is a debt that ranks above subordinated debt for payment of interest or principal (Arnold, 2008).

The potential to leverage equity investment against medium and long term debt is one of the main advantages of project financing. There are many sources for senior debt and the following section will examine the most common sources

such as commercial banks and multilateral and bilateral lending agencies. In the context of the general tightening of credit, particularly for emerging market projects, a variety of alternatives have become available for project financings and these will be outlined below (Milbank *et al*, 1996).

3.7.3.1 Commercial banks

According to Forrester (1995), due to growing competition among commercial banks and between commercial banks and other financial lenders to meet rising project finance needs, commercial banks developed new roles in executing advisory services; construction financing; intermediation to long-term fixed-rate financing; commodity, interest rate, currency risk management, working capital financing for international projects.

Milbank *et al* (1996) noticed that commercial banks have traditionally been the major source of senior debt for projects largely due to their expertise in non-recourse and limited-recourse financing in oil and gas, mineral and other infrastructure projects. Due to the complexity of project financing transaction costs are high. This means that project financing tends to be limited to larger and more capital intensive projects and projects with higher rates of return. This is because projects of this nature are more likely to be capable of absorbing financing costs. In the case of large loans risks are shared through commercial lenders syndicating loans[4] with a group of banks. This process makes it possible to raise higher levels of debt and provides greater flexibility with regards currencies that loans are paid in, draw-downs and pre-payment options. Banks can also spread their risks through this method and syndicated loans are a common feature in financing projects in developing countries.

The regulatory framework of banks in the home country impacts on the ability of international commercial banks to take part in projects in developing nations. Strategies such as debt-for-equity and debt-for-debt swaps, may be adopted to circumvent regulatory requirements. These obstacles that international banks often face increases the role of local banks, capital markets and multilateral agencies as major lenders to emerging market projects (*ibid*).

[4] Syndicated loan – a commercial banking transaction where two or more banks participate in making a loan to one borrower (Esty, 2004).

3.7.3.2 Multilateral Lending Agencies and Export Credit Agencies

Milbank *et al* (1996) states that due to the risks of inherent in emerging markets and a reluctance on the part of commercial banks to assume those risks, multilateral lending agencies, area development banks and export credit agencies (ECA) play a key role in the development and financing of major projects in emerging markets. Multilateral agencies such as the World Bank and the Multilateral Investment Guarantee Agency and regional banks like the European Bank of Reconstruction and Development and the Asian Development Bank can provide equity, debt, quasi-equity and guarantees. To assure sponsors, suppliers and lenders some of these will also provide political risk insurance. The involvement of multilateral agencies also provides political risk protection for projects that might otherwise not be financed due to a volatile political or social environment. Their involvement is often critical in providing sufficient assurance for commercial lenders to invest and for sponsors to access long-term credit on acceptable terms. These institutions are dissimilar in several respects: in products offered and the type of financing, the levels of commercial risk deemed acceptable and whether they require government counter-guarantees from the host countries.

In many cases since multilaterals and ECAs lack the resources to meet the capital requirements required to develop a project independently. They will therefore co-finance with private lenders. Co-financing involves loans made by multilaterals and ECAs together with private sector loans for the same project. Often multiple lenders will invest in the same project. For instance, the Polar Lights project to develop the Ardalin oil field in Siberia, was sponsored jointly by Conoco Inc. and Russia's Arkhangelskgeologia and financed in part by the IFC (US$60 million), the EBRD (US$9O million) and OPIC (US$50 million). There are disadvantages with loaning from multilaterals however, including a lengthy approval process (and the prospect of delay), restrictions on the loan currency and potentially currency risks (*ibid*).

3.7.3.3 Public market debt offerings

Milbank *et al* (1996) noted that projects have long attempted to gain access to the public bond and commercial paper markets. In emerging markets capital

markets have grown significantly with the result that projects increasingly seek to raise money locally. However, markets also have to contend with frequently overly bureaucratic regulations and regulatory bodies. The advantages of project financing in public debt markets include: (i) access to a wider range of buyers, (ii) less restrictive covenants than in the private market, and (iii) longer- term fixed rate debt. Particularly during the construction phase an important consideration for public market financing is the inflexibility of such financing. Structuring a project financed for the public market also requires attention to possible contingencies. In private market deals lenders generally have a higher level of expertise and better equipped to deal with the complex problems that may arise and often monitor a project with an independent engineer. Bank lenders also play an important role in the construction phase, giving consent and waivers to borrowers as they address unanticipated issues. By contrast in capital markets it is often more difficult for sponsors to obtain waivers or to amend agreements, measures that are sometimes necessary during the construction phase of a complex project (ibid).

Forrester (1995) suggests that from a project sponsor's perspective due to its high volatility capital markets are not reliable source of project finance compared to commercial banks. Such volatility can have adverse effect on projects in emerging markets. In addition, capital markets are not responsive to project financing during construction due to the following reasons:

1. Investors cannot price the construction risk properly.
2. The project will cause negative arbitrage on funds raised in foreseeing of construction expenses that were not yet occurred. This may result in a financial penalty, depending on the construction timetable, scheduled project draws, and the difference between interest paid to investors and interest earned on funds invested.
3. Technically, it is difficult to provide investor protection simultaneously with adequate flexibility to deal with unexpected events.

However, for successfully completed projects the international capital markets are an attractive source of permanent long-term fixed-rate financing (*ibid*).

3.8 Risks and Financial Considerations in Project Finance

Milbank *et al* (1996) identifies three categories of risks which should be

considered in project financing: in the credit extension stage, for example, it is credit risk; during the development of the project there is engineering, development and construction risks and during the operation of the project there are start-up and operations risks. Project financing may also be exposed to regulatory risks such as taxation and risks to the environment while risks generally associated with international business transactions tend to be commercial, political, force majeure, and legal risks.

Ruster (1996) identifies two groups of risks: during the construction period and operating period. The main techniques for mitigating risk during construction period are contractual arrangements and associated guarantees, contingency funds and credit lines, and private insurance. The construction contract allocates responsibilities between the project sponsor and construction companies. Contingency funds usually constitute 5%-15% of construction budget to cover unexpected increase of expenditures. Contingent lines may be provided by third-party contractors, standby letters of credit, or sponsor guarantees. Usually, several types of insurance may be applied to a project. For example, Construction All Risks Insurance protects against property damage and useful from the beginning of construction to performance testing. The instruments that can mitigate risks during the operating stage are contractual arrangements, contingency reserves, cash traps, insurance, and risk compensation devices. The most common structures that can be used to mitigate operating risks are take-or-pay, put-or-pay, pass-through contracts.

Delori and Virji (1995) stated that for emerging markets there are three types of risk that are crucial and need to be hedged: interest rate, currency and commodity risks. Changes in commodity prices, currency and interest rates have remarkable implications in estimating the future cash flows, project's profitability and credit worthiness. Therefore, a well-defined hedging strategy should be undertaken.

In order to make a decision about the financing of the project, all the project's potential risks should be considered as they can seriously impact the project. Thus, choosing the appropriate way of financing can mitigate those risks.

As project financing can have very high gearing, a financial feasibility study should be undertaken prior to the investment decision. Debt service coverage is

one of the most important considerations in project finance. The debt service coverage ratio shows how much cash is available to pay interest and the principal debt. Project earnings must be sufficient to service debt, provide necessary cash, pay operating expenditures and provide adequate protection for contingencies. In the feasibility study the assumptions must be realistic, models and matrices must be produced using different assumptions, including worst-case scenarios and contingency plans. The feasibility study should incorporate all of the project risks. The occurrence of an actual or projected cost overrun may cause a default under the loan agreement or else trigger the applicable cost overrun undertakings (Milbank *et al*, 1996).

3.9 Some Evidence on Project Performance

Esty (2002) concludes that large projects do not generate high financial nor operating rates. Industrial projects such as the Eurotunnel ($15 billion), Euro Disney, Enron's Dabhol power plant ($3 billion), Iridium ($5.5 billion), ICO Communications, Global Crossing (the Atlantic Crossing and Pacific Crossing Cables), Globalstar, and Murrin (an Australian nickel mine), as well as real estate projects like the Millennium Dome and Canary Wharf in London, have all faced financial hardships or been restructured. The key features of project performance can be summarised in the following: high construction costs, delays in project completion, lower returns to capital providers, poor financial performance. According to the Merrow *et al* (1988) research, only 4 projects (9%) out of 47 executed their projects according to budget. The total cost overrun constituted $30 billion, which is 88% from the projected costs. For large projects massive cost growth is the rule rather the exception (Fox, 1984). The study of International Finance Corporation (IFC) (1996) concluded that projects financed with private funds have better results in project completion than that of public funded. Schedule overruns in privately funded projects averaged 5.3 months (22%) on project with construction periods averaging 29.2 months. Whereas, projects financed with public funds averaged 54%-68% time overruns (Megginson and Netter, 2001). With regard to returns on projects, the IFC study revealed that the actual rate of return on its projects was almost half of projected rate of return. Another research of IFC concluded that the average projected return in 347 projects completed during 1978-1995 was 19%, whereas, the actual rate decreased to 12%. According to Miller and Lessard (2000), 40% out of 60 large engineering projects, whose average size of

investment was $1 billion, had poor financial performance and were either abandoned totally or restricted experiencing financial distress.

Based on the abovementioned evidence the conclusion is that large projects seem to experience remarkable cost and time overruns. These problems may significantly reduce equity returns; cause default and, potentially, serious losses to debt holders (Esty, 2002).

4 Case studies

4.1 Financing Eurotunnel

To demonstrate how large infrastructure projects can be financed and what consequences erroneous estimations and assumptions can cause the example of the Eurotunnel project will be assessed based on the project report by Dr. N. Ahuja and P. Singh. In 1986, according to the treaty signed between British and French governments, The Channel Tunnel Group (CTG) from the UK and France Manche (FM) from France were authorised to construct and operate the Eurotunnel System. CTG-FM was presented by leading UK and French banks and largest construction companies (Figure 3).

Figure 3: Promoters and Founder Shareholders of Eurotunnel System

1	**Construction companies**
1.1	Five UK companies (TransLink)
1.2	Five French companies (TransManche)[5]
2	**Banks (Arranging Eurotunnel Credit)**
2.1	Two UK banks:
	Midland
	NatWest
2.2	Tree French banks:
	Credit Lyonais
	Banque Nationale de Paris
	Banque Indosuez

Source: Grant, M. (1997). Financing Eurotunnel.

CTG-FM provided £50 million in seed capital (referred to as "Equity Offering I"). The Concession gave CTG-FM the right to build and operate the Eurotunnel System for 55 years from the date the treaty was ratified. At the end of the Concession, in 2042, the British and French governments would assume ownership of the Eurotunnel System. The Eurotunnel System would comprise of a rail tunnel under the English Channel connecting Britain and France. The estimated total cost of the project was £4.8 billion. To cover these expenses and possible cost overruns, Eurotunnel planned to raise £6 billion. £1 billion was

[5] - Contract with TransManche Link for delivery of operational system.

supposed to be funded by equity and £5 billion through loans. To cope with the difficult task of raising this amount of funds, Eurotunnel planned to raise the funds in stages:

1. The arranging banks received 33 letters of intent to underwrite loans of around £3.4 billion before the Eurotunnel Project's selection by the British and French governments.

2. The founding shareholders contributed equity of £50 million to CTG-FM after the Eurotunnel Project's selection in January 1986 (constituting Equity Offering I).

3. The Arranging Banks then increased the underwriting syndicate to 40 banks in the spring of 1986 and formalised their lending obligations in a collective commitment to underwrite a £5 billion syndicated loan. After the construction contract had been concluded the arranging banks planned to complete syndication.

4. Eurotunnel planned a second issue of shares (Equity Offering II) in June 1986 hoping that the issue would raise an extra £150–£250 million.

5. Following this the £5 billion project loan would be syndicated and enter the underwriting agreement. Drawdowns would be refused until a total of £1 billion of equity had been raised with a minimum of £700 earmarked for investment in the Eurotunnel Project.

6. The balance of the £1 billion of equity was planned to be raised in the Equity Offering planned for the first six months of 1987. 79% of Eurotunnel's total costs were estimated to consist of capital charges (interest and depreciation). Capital charges as a proportion of total costs would decline steadily thereafter. Eurotunnel expected that, after completion risk had been eliminated, it would be able to refinance much of the project debt with cheaper financing, which would further reduce the debt service burden (Ahuja & Singh).

Consequently, due to the mistaken estimates of the project's costs and delays in project construction the actual expenses doubled from £4.8 billion to £9.5 billion (www.business.timesonline.co.uk). The final scheme of financing is presented in Figure 4.

Figure 4: The Final Financing Scheme of the Eurotunnel Project

Equity Issues

		£ million	Timing
Equity 1	Founder Shareholders	47	September 1986
Equity 2	Private Institutional placement	206	October 1986
Equity 3	Public Issue	770	November 1987
Equity 4	Rights Issue	566	November 1990
Equity 5	Rights Issue	793	May 1994
Units issued to Bombardier (ESCW Settlement)[6]		35	June 1994
Exercise of Warrants and Options		17	June 1994
		2,434	
Potential Additional Equity			**Final Exercise Date**
Founder Warrants (Underwritten in 1994)		48	June 1995
1993 Warrants (Issued to Unit holders)		158	October 1995
1992 Warrants (Issued to Underwriting Banks)		25	March 2000
Bank Warrants		37	March 2000

Source: Grant, M. (1997). Financing Eurotunnel

Debt Structure

		£ million
1	Junior Credit facilities	6,800
	(Advances and letters of Credit)	
2	Parallel Loans	
	European Investment Bank	300
	ECSC	200
3	Senior Credit Facilities (Advances)	647
4	Co-Financing Facilities[7]	
	European Investment Bank	1,000
	Credit National	200

[6] - ESCW – Eurotunnel Consortium Wagon Group led by Bombardier

[7] - Co-financing facilities are secured by Letters of Credit under the Junior Credit facilities. They are not additional funds but provide Eurotunnel access to long-term fixed rate funding.

Source: Grant, M. (1997). Financing Eurotunnel

The Eurotunnel Project illustrates one way of financing large projects and demonstrates the overrun and economic risks that accompany large, ambitious transportation projects. This is particularly so when there is competition from other forms of transport in this case, ferries—whose operators may reduce fares in order to compete. The Eurotunnel Project highlights the financial problems that can accompany high leverage. Despite its financial difficulties since Eurotunnel began operating the European financial community generally felt that the Eurotunnel Project was viable and would continue. However, Eurotunnel needed a financial restructuring to reduce its debt burden as subsequent events have proven. Ultimately from the perspective of the two governments and the creditor banks the Eurotunnel Project is too big—and too visible—to be allowed to fail (Ahuja & Singh).

4.2 Financing Development of the Caspian Oil Fields

To demonstrate what alternatives companies may have in choosing the financing structure of the project, the case of financing development of the oil fields in Azerbaijan's sector of the Caspian Sea is presented based on Esty's case study (2004).

In 1998, the Azerbaijani International Oil Consortium (AIOC), which included 11 oil companies presented in Figure 5, developed oil fields in the Azerbaijani sector of the Caspian Sea. As of March 1999, AIOC had completed the $1.9 billion Early Oil Project, aimed at producing 100,000 barrels of crude oil per day (bpd). The original planned cost of the project was $1 billion, but this grew to $1.9 billion due to greater than expected expenses. The next phase, Full Field Development Project, was estimated to have cost from $8 to $10 billion and would increase oil production to 800,000 bpd by 2005.

Figure 5: Members of Azerbaijani International Oil Consortium

N	Company	Country	Share in AIOC	Ownership
1	**BP Amoco plc**	**UK**	**34.1**	**public**
	Amoco Corp.	USA	17	
	British Petroleum	UK	17.1	
2	StatOil	Norway	8.6	government
3	Turkish Petroleum	Turkey	6.8	government
4	Amerada Hess	USA	1.7	public
5	Unocal	USA	10	public
6	Exxon	USA	8	public
7	Pennzoil	USA	4.8	public
8	Ramco plc	UK	2.1	public
9	LukOil	Russia	10	government
10	Itochu Corp.	Japan	3.9	public
11	Socar	Azerbaijan	10	government

The Early Oil Project involved the development of the Chirag Field by reconstructing an off-shore production platform, drilling new wells, and constructing a 105-mile subsea pipeline to an on-shore terminal. It also involved reconstruction of two export pipelines to the Black Sea – a 750-mile northern route to the Russian port Novorossiysk and a 550-mile western route to the Georgian port Supsa.

To finance the Early Oil Project, each subsidiary was supposed to fund a certain proportion of the capital expenditures and receive a proportion of output according to its share. AIOC members incorporated special purpose subsidiaries as their investment vehicles and created a centralised project management by establishing a joint company. Six members of AIOC funded its total 48.2% share by using internal corporate funds. Five other members (Amoco. Exxon, Unocal, LUKoil, and Turkish Petroleum) formed a Mutual Interest Group (MIG) to obtain a project loan with the assistance of two multilateral agencies, the International Finance Corporation (IFC – a member of World Bank Group) and the European Bank for Reconstruction and Development (EBRD). The multilateral agencies provided long-term funds and also assisted in mitigating political risks as development banks.

In February 1999, MIG along with IFC and EBRD closed a $400 million limited-recourse project financing with an effective interest rate of less than 10%, representing the spread of 350 to 400 basis points over the current six-month LIBOR rate. Usually, the multilaterals funded projects in one of three ways:

direct lending for "A Loans"[8], indirect lending for a syndicated bank loan ("B Loans[9]), or equity contributions. In this case, the financing was structured in ten A loans and ten B loans. Each agency (IFC and EBRD) made an A and B loan to each of the five MIG members.

To syndicate B loans of $200 million was not an easy task. Finally, only three banks commitments were received totalling just $75 million. The IFC and EBRD financed $150 million out of $200 million in A loans, hoping to raise the remainder of funds when the situation in financing the emerging markets will improve.

To show what alternatives a company may have in financing the large projects, the example of BP Amoco (the largest member in AIOC), related to financing the Full Field Development Project, will be presented.

To finance its $1 billion (34.1%*$3 billion) share for the first stage of the Full Field Development Project, BP Amoco had several options. It could use a dual financing strategy like in the Early Oil Project where half its commitment would come from internal funds and half from a project loan. "The advantage of this approach is that it gave them the best of both worlds; the disadvantage was that it also gave them the worst of both worlds" (Esty, 2004, p.159).

On the other hand, BP Amoco could join some or all members of AIOC and arrange a project loan as it was in the Early Oil Project. This approach enabled BP Amoco to leverage its investment with outside funds mitigating political risks. The drawback of this option, given the incomplete syndication, was the long time required to close a deal and the cost of project debt.

The third approach could be to finance the project by internal funds. Like all previous options, this one had disadvantages. For instance, being the largest investor and project operator, BP Amoco could make it more difficult for other

[8] A loan – A loan from a multilateral agency such as the International Finance Corporation (IFC) where it is the lender of record and where it books the loan for its own account (Esty, 2004).

[9] B loan – A loan syndicated by a multilateral lender, such as the IFC, that acts as the lender of record on behalf of the funding participants (commercial banks and other institutional investors) (Esty, 2004).

AIOC members to negotiate a good deal. If weaker consortium members negotiate with lenders it could result in a deal that will negatively affect BP Amoco's operational and managerial flexibility. Furthermore, it could cause adverse precedents for future financing. In addition, other AIOC partners could blame BP Amoco for free riding as they bore more expensive financing, while sharing the political risks provided by multilaterals. Finally, the decision how to finance the first stage of the Full Field Development Project would impact on the financing of future stages (Esty, 2004).

This example demonstrates how large projects can be financed, what kind of options a company may have in defining the ways of financing, and what consequences the financing decisions can have on the whole project.

5 The case study of the KCTS project

5.1 Project Finance in Kazakhstan

The experience of Kazakhstan in project finance, as well as other countries of the former Soviet Union, is relatively modest. In the mid 1990s, there were active financing of large scale and capital intensive projects in oil and gas sector, such as the Kashagan and Karachaganak oil fields. In other industries, although there were many capital intensive projects in mineral recourses mining and refining, infrastructure development and modernisation of thermoelectric and hydroelectric power stations. Project financing was not as popular as it was in developed countries. According to the director of structured financing of the Eurasian Development Bank, the reasons for undeveloped project finance in Kazakhstan lay in the following (Burnashev, 2010):

1. Before the financial crisis of 2008-2009, macroeconomic stability and high prices of export products had led Kazakhstan to a surplus in the state budget, which allowed it to fund not only social programmes but also to invest considerable amounts of money to development funds. Funds were available for investment programs at the republic and local levels. The role of national development institutes, such as the Kazakhstan Development Bank has increased significantly. Moreover, new institutions, for example, the Eurasian Development Bank and the National Wealth Fund "Samruk-Kazyna" were successfully created. Those activities laid the foundation for the growth of project financing as a tool for the fulfilment of government project priorities. Institutions of development in particular, play a key role in project financing in Kazakhstan.
2. The beginning of the 21st century was associated with significant capital flows to almost all sectors of the Kazakhstan economy. Between 1998-2008, due to relatively cheap international funds and the openness of emerging markets, domestic and foreign investors invested their money in various projects, including those which were financed on a non-recourse basis.
3. Many leading Kazakhstan companies have become public and their shares are traded on domestic and international stock markets. For such companies, traditional instruments of corporate financing have become available. In particular, by means of corporate loans many development and capacity

extension projects, as well as projects devoted to exploring and mining new mineral recourse deposits were financed. Due to its specificity and complexity, only a few companies used project financing.

4. Project financing in Kazakhstan is still at the formation stage. The relationships between the government and business, the overall level of market efficiency and the relationships between economic units have not reached the level that they have in more developed countries. Thus, the legislative and legal systems are far from perfect. For project finance the level of the development of corporate and property rights is crucial. The efficiency of project finance is characterised by the overall effectiveness of judicial and administrative systems. Therefore, considering the above mentioned factors, the majority of projects were funded on the basis of mixed financing rather than pure project financing.
5. Finally, the financial crisis in 2008-2009 negatively affected the execution of many investment programmes and forced companies to concentrate on simply to survive. In addition, financial institutions that traditionally were involved in project financing are experiencing difficult times as well.

In general, two key features of almost all successful projects in Kazakhstan should be mentioned. The first is the potentially high profitability and capacity to generate good cash flows. Traditionally, EBITDA in such projects ranges from 40% to 70% and above. The second feature is having a strong sponsor who can successfully promote the project. Often, such sponsors can be government or state companies. In such cases, the sponsor's investment to the project is only expressed by equity contribution and expenses for initial development of an asset (ibid).

Having four years experience in project financing in Kazakhstan, the Eurasian Development Bank (EDB) concludes that the majority of projects are fulfilled on the basis of hybrid finance: the structuring of the projects are based on project finance but elements of corporate finance are added such as corporate guarantee and support of the project's shareholders often through bank guarantees. That is because of the limited number of participants in the project and failure to reduce risks to an appropriate level for the EBD. Furthermore, due to complicated documentation procedures in project financing, many projects are rejected based on their infeasibility, low professionalism of the team

implementing the project and weak or unstable financial position of the sponsor in relation to both state and private projects.

Despite advantages of project finance, it is not widely used in Kazakhstan, particularly, in large-scale joint international projects devoted to the development and integration of countries in the region of the former Soviet Union and increase of their export potential. However, this instrument could reduce the debt burden of the project's sponsors, who are often state companies, effectively distributing it between creditors; diversifying the risks of major project participants and improving the efficiency of project management in case of its execution.

In Kazakhstan, capital markets are not well developed and market liquidity is relatively low. Thus, banks heavily reliant on external borrowing. Lack of well-functioning money and debt markets and limited domestic alternatives to raising long-term capital have led banks to foreign markets. Moreover, limited high-quality collateral for money market transactions has resulted in banks relying on the foreign exchange market for liquidity management. There is an absence of hedging mechanisms that would allow banks to manage risks (www.lnweb90.worldbank.org). Kazakhstani banks dependence on external borrowing have led to relatively high rates of lending, which have forced Kazakhstani companies to seek sources of finance directly from foreign commercial and development banks.

5.2 Typical Structure of Project Financing Scheme in Kazakhstan

According to the Development Bank of Kazakhstan (DBK), the typical structure of project financing in Kazakhstan is as follows.

Firstly, the Kazakh government and a company, in collaboration with other financial institutions, establish a project company (special purpose vehicle, SPV) in the form of joint-stock company. Then, the project company tenders for construction services and delivery of necessary equipment. The project company negotiates the appropriate agreements and contracts. The project company organises a tender among foreign banks for the financial consultant and organiser of the financing transaction for the whole project. The DBK can act on behalf of the government. The SPV issues a mandate for organising the borrowing required for project financing. Furthermore, the SPV signs contracts

with various potential consumers of the project's services rendering on completion of object construction under the project. The project company opens a special account, where receipts from the services provided are accumulated and from which obligations are served.
The foreign bank (banks) jointly with DBK attracts borrowings such as secured Eurobonds issuing programme, credit lines or co-financing. The borrowed funds go to the payment for the construction services, the equipment delivery and other services through the SPV account.

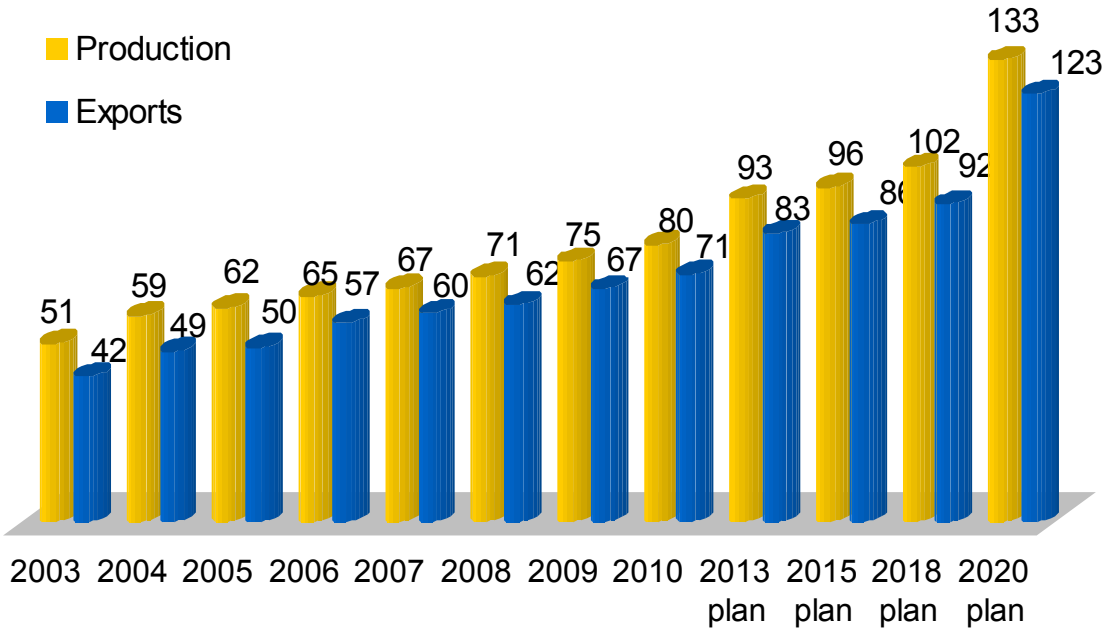
After object commissioning, the receipts from the consumers go to the special account, which is used for servicing the borrowed funds (www.kdb.kz).

5.3 An overview of the current situation in Kazakhstan's oil industry

In many developing countries such as Kazakhstan, the oil and gas industries have extensive state involvement. However, the lack of available state resources and high capital needs have led governments to seek private and foreign investment. In order to attract foreign funds developing countries have reduced state regulation and adopted more transparent regulatory schemes while liberalising their economies. These improvements have resulted in increased opportunities for private domestic and foreign investors (Milbank *et al*, 1996).

The oil sector is a key industry in Kazakhstan. To maintain sustainable economic growth and improve the quality of life of its people the Kazakh government elaborated the National strategy for the development of the Caspian Sea for 2003-2015. As a part of this strategy Kazakhstan is planning to significantly increase oil and gas production and to enhance the revenues of the state budget. The detailed plan of oil and gas production and export is shown in Figure 6.

Figure 6: Production and Export of Oil and Gas in Kazakhstan



Source: Presentation of JSC NC KazMunaiGas, 2011, p.5

The Kazakhstani sector of the Caspian Sea has large oil reserves. Based on the geologic-geophysical research Kazakhstan's volume of fuel resources is forecasted at 8 billion tons, including oil reserves of 4.5 billion tons (Tolumbayev, 2011). To efficiently use existing resources the country needs huge investment, modern technology and highly qualified human resources. Therefore, work towards attracting foreign investment and technology of the leading world oil companies is proceeding. The country's policy is aimed at the creation of a stable politic environment and economic growth with continuing improvement of legislation and the promotion of a prosperous investment climate with tax preferences. These policies have already attracted multinational corporations such as ExxonMobil, Total, Chevron, Agip, British Petroleum, Statoil, and Shell to Kazakhstan. Between 1996 and 2010, $114 billion was invested in Kazakhstan's oil and gas sector with $15 billion allocated to geologic prospecting works. Annual investment grew by more than 17 times reaching $16 billion in 2010, including $1.5 billion for prospecting works. The volume of investments in exploration of the great oil fields of Kashagan reached $22 billion in 2010.

Nowadays, there are 201 contracts signed for subsurface management, fifteen of which are based on production sharing agreement. The Government of Kazakhstan maintains its share in all projects that take place in the territory of the country through the National Company KazMunaiGas. Exploration of the oil fields in the Caspian region is associated with technological difficulties because of the area's severe climate, high proportions of sulphureted hydrogen in the oil, an abnormally high atmosphere pressure and ecologic sensibility of the area where oil fields are located. Thus, there are serious requirements for the quality of the equipment and innovative technologies used in oil exploration in this region. Oil production in Kazakhstan continues to grow rapidly. In the last decade, the average annual growth of oil production exceeded 10%. The volume of oil and gas exports reached 71 million tons. While planning for a considerable growth of oil and gas production in the Caspian region there is a great importance attached to the development of transportation infrastructure to deliver hydrocarbons to the world market.

The development of the Caspian region is being carried out in collaboration with neighbouring countries such as Russia, Azerbaijan, Turkmenistan, and Iran. The main export destinations for oil transportation from the Caspian region are the Caspian Pipeline Consortium (to the Black Sea, Russia), Atasu-Alashankou (to China), port Aktau (to Iran and Azerbaijan), and the Kazakhstan Caspian Transportation System (KCTS). In July 2011, the extension of Caspian Pipeline Consortium project began. This project will allow export of 52.5 million tons in 2015 to the West European countries compared to the current 32.5 million tons. Currently, the beginning of the 2nd stage of the exploration of Kashagan oil field, a new oil pipeline Yeskene-Kuryk is planned. This project will be realised within the KCTS project and will enable transportation of oil through the Caspian Sea to Baku-Tbilisi-Ceyhan and then to world markets. In addition to the Yeskene-Kuryk pipeline to facilitate the transport of oil from the biggest oil fields Kashagan and Tengiz to the Baku-Tbilisi-Ceyhan pipeline a Transcaspian system is also planned. The Transcaspian system is also a part of the KCTS project and includes construction of new oil terminals on both Kazakhstan and Azerbaijan Caspian shores as well as purchase of additional tankers and ships and the creation of a connecting system to the Baku-Tbilisi-Ceyhan pipeline (Tolumbayev, 2011).

5.4 The KCTS project

According to the materials provided by KMG-TransCaspiy, the aim of the KCTS project is to create a new combined transport system that will enable Kazakhstan to deliver its crude oil through the Baku-Tbilisi-Ceyhan pipeline to Ceyhan (Turkey) and/or other oil transportation systems via the Republic of Azerbaijan to the world oil markets. The project will create a single energy transportation corridor from east to west running towards the Mediterranean Sea, avoiding the Bosporus and Dardanelle Straits, with an outlet at the biggest marine oil loading terminals of the abovementioned region, such as the deep-sea Mediterranean port at Ceyhan. The project has a strategic importance as it will allow diversification of Kazakhstan export routes for oil and secure substantial economic benefits. The KCTS project will integrate the Yeskene-Kuryk pipeline and the Transcaspian System.

It is anticipated that a new oil loading terminal capable of receiving tankers with a large deadweight with a maximum of 60,000 tonnes will be built at the Kuryk port where it will connect the Yeskene-Kuryk pipeline to the Yeskene oil treatment plant. The new pipeline will be packed not only with Kashagan oil, this route will be used by other oil companies as well. Memorandum of Cooperation concerning the feasibility study between NC «KazMunauGas» JSC, JSC «KazTransOil» and «Total» company involves collaborative research on «Yeskene-Kuryk» pipeline which resulted in signing of a Declaration of intentions.

The 750 km Yeskene-Kuryk pipeline will transport 23 million tones of oil annually with the potential of carrying between 35 and 56 million tons per year in the future. The Presidents of Kazakhstan and Azerbaijan signed an Agreement concerning oil transportation from Kazakhstan via the Caspian sea and Azerbaijan to international markets though the «Baku-Tbilisi-Ceyhan» pipeline in 1996. Following the Agreement's provisions, a Trans-Caspian oil transportation system will be created which will construct a large-capacity tanker fleet and reception capacities in Azerbaijan which will connect with the «Baku-Ceyhan» pipeline.

The significance of this new transportation system in the global market for energy is that it will allow Kazakhstan oil companies to consider new directions of deliveries and will provide access to deep-water port Ceyhan round about

Turkish straits Bosporus and Dardanelles. This perspective provides an economically beneficial access to distant oil markets, such as America and South-Eastern Asia countries. As a way of development of this direction, it is planned to supply oil from Kashagan field, and from other fields of the Caspian shelf and Western Kazakhstan. From the port at Kuryk oil can be delivered in other directions, including Baku-Batumi and to Iran (www.kmg.kz).

The members of the KCTS project are the Kazakhstan National Company KazMunaiGas (KMG) and the State Oil Company of the Azerbaijan Republic (SOCAR). The main legislative basis for the project is a Treaty dated 16th June 2006 between the Republics of Kazakhstan and Azerbaijan to facilitate and support the transportation of petroleum from Kazakhstan across the Caspian Sea and the territory of Azerbaijan to international markets through the Baku-Tbilisi-Ceyhan system; a Memorandum of Understanding on Cooperation Principles among KCTS Project Participants dated January 24th 2007 and other intergovernmental agreements and international declarations related to relevant issues (Amended and Restated Memorandum of Understanding: KCTS Cooperation Principles, 2008).

The KCTS is designed to transport crude oil mainly from a new Kashagan oil field and the existing Tengiz field. That makes the KCTS project dependent on the start of the Kashagan oil production. The Kashagan oil field is being developed in accordance with the Production Sharing Agreement in respect of the North Caspian Sea (NCS PSA) dated November 18th 1997. Initially, the shares of the partners of the Kashagan oil field were distributed as following: Eni (18.52%), KMG Kashagan BV (8.33%), ExxonMobil (18.52%), Shell (18.52%), Total (18.52%), ConocoPhillips (9.26 %) and lnpex (8.33%). In 2001, ENI was appointed as operator of the project by the NCS PSA partners (*ibid*).

Taking into account the fact that ENI, ConocoPhillips, lnpex and Total are NCS PSA partners and have a 15% share in the Baku-Tbilisi-Ceyhan pipeline, together with Chevron (8,9%) which is a Tengiz partner, the creation of the KCTS is considered as a most promising course of action.

5.5 The Kashagan Oil Field

The Kashagan oil field was discovered in 2000. According to NK KazMunaiGaz data, the reserves of crude oil in Kashagan oil deposit constitute 4,850 million

tonnes while recoverable reserves are 1,475.5 million tonnes. The period of development will last until 2041 and initially oil production from the Kashagan field was intended to have included three phases (www.kmg.kz):

Phase 1: 2002 to 2010. Initiation of development: pilot development of the eastern part of the Kashagan field beginning in 2008, an increase in production levels to 21 million tons of oil annually (450 thousand barrels/day).

Phase 2: 2010 to 2014. Extension of the developed zone, further increases in production levels to 42 million tonnes of oil per year (900 thousand barrels/day) from the Kashagan field.

Phase 3: 2015 to 2041. Further extension of the developed zone, ramping-up production to the maximum level of 56 million tonnes of oil per year (1200 thousand barrels/day).

Currently, the Kazakhstan government and NCS PSA Contracting Companies are in the process of drafting amendments concerning the realisation of the Kashagan field. The delay is caused by the dispute between the authorised organisation (NC KazMunaiGas) and NCS Consortium. The contractor submitted Amendment N3 and the budget for the government's consideration in June 2007. The amendment suggested a rise in planned spending from $57 to $136 billion; further delay in the oil mining schedule from 2008 to 2010 and also a restructuring of infrastructural development in the sea section. Delay was a result of the initial design failing to meet international standards for operating personnel safety concerning possible spills of toxic hydrogen sulphate. Originally the authorised organisation was not in agreement with Amendment N3 to KDPBA and this dispute led to negotiations continuing between July 2007 and October 2008. On October 31, 2008 the authorized organisation and NCS consortium signed the second supplementary NCP agreement that stated the following:

1. Share: NC «KazMunayGas» JSC through its subsidiary «KMG Kashagan B.V» would raise its share till it was equivalent to the level of major shareholders – from 8.33% to 16.81%.

2. Additional payments: Priority share paid by the NCS consortium to the Republic of Kazakhstan (from 3.5% to 12.5% with oil price from $45 to

$195). Including profits from the share increase the total received by Kazakhstan would be $7.2 US billion in NPV values (at the discount rate 10%). This was equivalent to $71 billion in non-discountable cash flows at the price of $85 per barrel. If the price of oil rose to $125 per barrel, the amount of compensation would increase to $13.7 billion.

3. Concerning project budget and schedule control: firstly if commercial oil production failed to commence before October 1, 2013, consortium expenditure would not be compensated; b) there would be no compensation for additional expenditures regarding phases 1+2 in addition to the agreed budget in case of future changes in the volume of work prior to commercial oil production.

4. Penal sanctions: if commercial oil production was delayed after 2008 the penalty would rise from $50 to $120 million per year in 2012.

5. Decrease of interest rate charged on capital investment (uplift) from LIBOR + 3% to LIBOR+2.5%.

6. Transition to New Operation Model: a new joint company would be formed to improve the efficiency of the project's management and strengthen the role of «KazMunaiGas».

7. «Ship or pay»: In exchange for 'Ship or Pay' terms for contracting companies they would receive a reasonable, non-discriminatory rate and mutually agreed stability guarantees (www.kmg.kz).

Disagreements between participants of the Kashagan project resulted in delay of the second phase from 2014 to 2018 and a corresponding postponement of the third phase.

5.6 Cash flow of the Yeskene-Kuryk project

The cash flow provided by KMG-TransCaspiy company is related to the first part of the KCTS project, the Yeskene-Kuryk pipeline construction. The cash flow has different assumptions and four scenarios. The first two scenarios are based on different volumes of oil transportation and assume a certain level of capital and operational expenditure. A further two scenarios are based on different levels of debt financing. All scenarios include the possibility of delay of the second phase

of the Kashagan field till 2018. Thus, the main stream of revenues will start in 2018. The tariff for oil transportation is calculated based on the methodology of the monopoly regulator of Kazakhstan as, according to Kazakhstan legislation, oil transportation is treated as a natural monopoly. The period of cash flow projections is 33 years from 2009 to 2042. The data in the cash flow does not include 12% VAT.

The main assumptions of the financial model are presented in the Figure 7. The detailed financial model with four scenarios is presented in Appendix 1.

Figure 7: General assumptions for the Yeskene-Kuryk cash flow

Discounting rate	11.50%
WACC	11.26%
Financing rate in Kazakhstan (the rate of National Bank financing)	7%
Financing rate in the USA	0.25%
Inflation in Kazakhstan (tenge)	4%
Inflation in the USA (US dollar)	2%
Corporate tax	20%
VAT	12%
Financing rate	7.32%
Credit period	10 years
Period of grace	3 years
Dividend payments in the first 5 years	0

Scenarios

1. The first scenario is based on the assumption that the maximum volume of transportation will be 56 million tonnes per year and the project will be financed 100% by debt. The detailed plan of transportation volumes is shown in Figure 8.

Figure 8: The Projected Volumes of Oil Transportation for the KCTS Project for 2014-2023

Million tonnes

	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
The volume of oil transport-tation	11.69	11.69	11.69	11.69	18.61	28.18	40.01	40.95	52.66	56.00

2. The second scenario is based on the assumption of maximum oil production of 80 million tonnes per year; the project will be financed by 100% debt.

3. The third scenario is calculated on the assumption of 75% debt financing and 25% equity financing; the volume of transportation is realistic at 56 million tonnes per year.

4. The fourth scenario is calculated based on 75% debt financing, 25% equity financing and the volume of transportation at 80 million tonnes per year.

Scenario 1: 56 million tonnes per years, 100% debt

Total capital expenditures	$2.7 billion
NPV	$231 million
IRR	21%
Discounted payback period	17 years
Payback period	14 years

In the first scenario, the project starts to generate cash flow only from 2024 after 14 years of the project when the principal payments will become lower. The accumulated discounted cash flow of the project becomes positive only in 2027, after 17 years. The total NPV of the project according to the first scenario is $231 million and IRR is 21%.

Scenario 2: 80 million tonnes per year, 100% debt

Total capital expenditures	$3.4 billion
NPV	$291 million
IRR	21%
Discounted payback period	17 years
Payback period	15 years

In the second scenario, although the volume of transportation is increased to 80 million tonnes per year, it does not have a significant effect on the cash flow and increases NPV by only $60 million. That is because the capacity extension requires an additional $700 million, increasing capital expenditures from $2.7 to

$3.4 billion. The Internal Rate of return remains the same as in the first scenario.

Scenario 3: 75% debt financing, 25% equity financing, 56 million tonnes per year

Total capital expenditures	$2.7 billion
NPV	$165 million
IRR	14%
Discounted payback period	21 years
Payback period	11 years

In the third scenario, the decrease of debt financing to 75% has negatively affected the project's outcome by lowering the project's NPV to $165 million, decreasing IRR by 7%, and lengthening the discounted payback period by 4 years. That is attributed to the fact that debt financing is cheaper than equity financing due to a higher rate of return on equity.

Scenario 4: 75% debt financing, 25% equity financing, 80 million tonnes per year

Total capital expenditures	$3.4 billion
NPV	$213 million
IRR	14%
Discounted payback period	20 years
Payback period	12 years

In the fourth scenario, compared to the second scenario with the same volume of transportation but a higher proportion of debt, NPV decreased by $78 million, IRR fell by 7% and the discounted payback period became 3 years longer. In general, all scenarios demonstrated relatively low NPV compared to the amount invested in the project and the long payback period. Low volumes of oil transportation in the early years (2014-2017) and the necessity of maintaining a competitive tariff leads to a deficit of funds for debt service and the necessity of attracting an additional funds of $1.5 billion.

5.7 Proposed financing structure of the Yeskene-Kuryk project

The projected cash flow provided by the KMG-TransCaspiy company is based on one of a range of possible financing structures which has been negotiated with lenders. The total amount of the Yeskene-Kuryk project is $2.7 billion (excluding VAT). The amount of equity to be raised is $0.5 billion, while debt financing is estimated at $2.2 billion. Debt finances are planned to be provided by three financial institutions: COFACE, Japan Bank of International Cooperation (JBIC) and Nippon Export and Investment Insurance (NEXI). COFACE was initially founded as the French export credit agency and was later privatised by the government continuing as a commercial enterprise. COFACE is a part of the corporate, investment and financial services arm of Group BPCE of the Natixis group the second largest banking player in France. The main business of COFACE is trade receivables protection, finance and management and credit insurance (www.coface.com).

JBIC is the international branch of Japan Finance Corporation and provides policy-based finance with a mission to contribute to the sound development of the Japanese and international economy (www.jbic.go.jp). Nexi supports investments and loans for overseas business through cooperation with JBIC, particularly medium and long-term export finance for developing countries in cooperation with JBIC and Japanese commercial banks. NEXI also insures the loan funded by commercial banks (www.nexi.go.jp).

Main characteristics of proposed financing:

Lender: sponsor company NC KazMunaiGas.

The amount of the contract: up to $2.5 billion or equivalent in euro.

Period of credit: 13 years (period of construction – 3 years, period of repayment – 10 years).

Effective rate of return: 7.3%.

Kazakhstan share of financing: up to 30% of the export contracts amount.

Financing structure and major conditions:

COFACE:

The amount financing: $1.321 billion.

The share of financing: 85% of commercial contracts amount.

Fixed rate (based on Commercial Interest Reference Rate): EURIBOR CIRR (4.34%) + interest margin 0.65% ≈ 4.99%.

Adjustable rate: 6 months EURIBOR (0.964%) + interest margin 1.40% ≈ 2.36%.

Default fee: 2%.

Commitment fee: 0.50%.

Arrangement fee: 0.60%.

Bank charges: 1%.

COFACE premium: 12.18%.

JBIC:

The amount financing: $0.528 billion.

The share of financing: up to 85% of commercial contracts amount.

Interest rate: 2.3%.

Commitment fee: 0.50%.

Arrangement fee: 0.60%.

Bank charges: 1%.

JBIC premium: 12.18%.

Agency fee: $30,000 annually.

NEXI:

The amount of co-financing: $0.352 billion.

Interest rate: 4.2%.

- in case of the early payment option: 6 months LIBOR (0.388%) + interest margin 1.60% ≈ 1.989%
- in case of scheduled payments: 6 months LIBOR (0.388%) + interest rate 1.65% ≈ 2.04%.

Commitment fee: 0.50%.

Arrangement fee: 0.60%.

Bank charges: 1%.

NEXI premium: 12.18%.

Problematic issues in the proposed scheme:

- According to the terms of COFACE, NC KazMunaiGas but not KMG-TransCaspiy should receive the loan, while NC KazMunaiGas's position is that the project company KMG-TransCaspiy should receive the loan with KazMunaiGas' corporate guarantee.
- COFACE does not want to agree with the NC KazMunaiGas' proposal to substitute the corporate guarantee of NC KazMunaiGas on to shippers' liabilities "ship or pay" in the future (Presentation of KMG-TransCaspiy, 2010).

5.8 Risks, considerations and recommendations for the KCTS project

5.8.1 Financial risks

According to the indicative cash flow of the Yeskene-Kuryk project presented by KMG-TransCaspiy company the project contains the following financial risks.

Firstly, the project revenues do not allow proper debt servicing. High principal and interest payments on debt lead to a deficit of cash and necessity to attract additional funds to cover the deficit. This can potentially result in a situation

where the company is unable to service its debt. Moreover, there are no funds for any contingencies. It is important that project revenues must be sufficient to service debt, provide needed cash, pay operating expenses and provide adequate protection for contingencies.

The second consideration is the feasibility of the financial model, particularly its assumptions and scenarios. It is crucial that input data for cash flow projections, including revenue forecast, capital and operational expenses, inflation, interest rates and the period of construction should be realistic and carefully considered. Scenario analysis should include the worst-case scenario and contingency plans.

Furthermore, the actual capital and operational costs might be considerably higher than forecasted (as it was in Eurotunnel example), which can result in significant cost overruns. This may lead to additional borrowing while the revenues of the project might be insufficient to cover the debt. If the project costs are higher than projected in provided cash flow, there is no extra capacity for additional borrowing repayment. Such situation may result in default of the project. Moreover, there are no reserves of funds in case of force majeure. If force majeure occurs during construction it may adversely affect the project causing massive additional investments and the delay of commercial production. This may result in project default in cases where the company does not have adequate reserves of cash or contingency plans.

5.8.2 Engineering and construction risks

One of the key issues of the project is completion on time. If the project is not implemented according to the schedule it might detrimentally affect the outcome including future cash flows. Delay in completion leads, at best, to additional interest expense and lengthening of the repayment profile (Milbank *et al*, 1996). Large projects such as KCTS often have complexities in construction, design and engineering. In addition, during the construction process delays in the supply of materials and problems with suppliers and contractors may occur. Therefore, the selection and use of proven technologies, strong construction contracts and guarantees as well as the use of qualified and creditworthy contractors may be vital for the project execution.

5.8.3 Commercial risk

In project finance the debt service is fulfilled from that particular project's revenues. Therefore, it is important that the project must be conducted properly and efficiently in order to ensure that the projected output is achieved. Therefore, offtake agreements[10] or "ship or pay" contracts with contractors can be very helpful in guaranteeing cash flows. A default by the offtaker[11] will cause a loss of income, which, in turn will result in a default in debt payment and other obligations of the project company necessitating the interruption of operations (Milbank *et al*, 1996).

Furthermore, as the major oil supplier for transportation to KCTS is Kashagan oil field, the revenues of KCTS will strongly depend on that oil field. In particular, the delay of commercial production in Kashagan will adversely affect the KCTS revenues. Thus, all the risks of the Kashagan project may be attributed to the KCTS project and the construction of KCTS is feasible only when Kashagan produces considerable quantities of oil sufficient to generate enough revenue for KCTS to service the debt.

5.8.4 Currency risk

According to Milbank *et al* (1996), projects that generate revenues in one currency, but which are financed by obligations payable in another currency are exposed to currency risk. Currency risk occurs from the use of multiple currencies (devaluation or parity risk), the need to obtain specified currencies (availability or conversion risk) and the need to move specified currencies (repatriation risk). Considerable devaluation of a local currency will impair the project's ability to repay the debt in another currency unless a corresponding increase in income is made. Traditionally this occurs through price increases. Therefore, even if a project is generating cash flow in the local currency exactly as planned, the value of such a currency when converted into dollars for example may be insufficient to service the debt due to devaluation of the local currency. As for conversion risk, exchange controls restricting or prohibiting

[10] Offtake agreement – an agreement to purchase all or a substantial part of the product produced by a project, which typically provides the revenue stream for a project financing (Esty, 2004, p.531).

[11] Offtaker (Offtake purchaser) – the purchaser of a project's output (Esty, 2004, p.531).

conversion from local currencies may impair repayment of the project's debt. Furthermore, local market limitations on currency availability could impair the ability to convert money to a specified currency, affecting the debt repayment capacity. To mitigate currency risks the following measures can be implied: indexing local currency revenues to dollar equivalents; special deposit accounts (including offshore dollar accounts); frequent conversions; exchange agreements; currency hedges and currency reserve accounts (Milbank *et al*, 1996).

5.8.5 Political risk

Projects in developing countries may be exposed to political risk. Political risk assessment involves the possibility of a sudden change in the system of government for instance through changes in the status of individual leaders or parties. The results of sudden changes in the political system may cause expropriation, nationalisation, confiscation of assets and political violence (Milbank et al, 1996). Higher political risk of a country should result in a larger proportion of project finance loans among all syndicated loans (Hainz and Kleimeier, 2004). As KCTS involves a joint venture between two countries (Kazakhstan and Azerbaijan), the KCTS project bares the political risks of those countries. Moreover, the political situation in other neighboring countries (Russia) and also diplomatic relationships with them can impact on the realisation of the KCTS project. In addition, the KCTS project is linked with the Baku-Tbilisi-Ceyhan pipeline, which makes it vulnerable to the political risks in Turkey and Georgia and to diplomatic relationships of Kazakhstan and Azerbaijan with those countries.

As large projects such as KCTS require huge capital investment the payout from the project would likely to come after 6 to 10 years (Milbank et al, 1996). Therefore, the investing company would not create economic value until late in the first decade or even in the second. For that reason, political risk assessments should be targeted at predicting expected political risks to the project's revenues for 10 years or more into the future. The problem is that such predictions are rarely reliable particularly in politically volatile regions distinguished by political, ethnic and/or religious divisions (Milbank *et al*, 1996). To mitigate political risks the following measures can be important: ensuring extensive participation of the partner-country in the project including a

multilateral agency in the financing or ensuring that the syndicate of lenders is drawn from a wide range of countries. Treaties between partners may also substantially reduce political risk providing non-discriminatory treatment and protection against expropriation.

5.8.6 Structuring considerations

5.8.6.1 Project interconnections

It is anticipated that the KCTS project will be related to other projects such as the Kashagan and Tengiz oil fields; onshore Kazakh pipelines and export infrastructure from Baku (Azerbaijan). However this raises the following issues:

- Is the KCTS project intended as a standalone project and what is the extent of interrelations with other assets in Kazakhstan or the Caspian region?
- Whether KCTS is solely assigned for Kashagan and Tengiz oil or whether access for other companies will be available?
- Will the project generate projects if organised as a standalone project?
- How would ownership differ from that of related infrastructure assets?
- How would the allocation of capacity rights and economic rent between the various segments be organized for the management and control of the integrated transportation system?

Answers to these questions will affect the economics of the project and its ability to raise limited resource debt.

5.8.6.2 Risk allocation

It is vital that there is a suitable allocation of risk between the various projects and infrastructure assets and between sponsors and lenders of the project and the following issues need to be decided.

- Who will carry the completion risk for each of the projects;
- How the risk of postponement in one particular project impacts on the completion of other projects;
- The manner in which different risks would affect the cash flow of the project could be addressed by development of a payment calculation methodology.

Various issues need to be addressed including construction delay and overrun; operational issues; the shipping of lower volumes of oil due to upstream interruptions and operational issues with the Baku-Tbilisi-Ceyhan pipeline. Another factor to be considered is political events leading to interruption of production and transportation. The subsequent KCTS transportation agreement should reflect the agreed risk allocation and allow producers and sponsors to adopt a produce-and-pay structure or a ship-or-pay structure. In addition, payment adjustments may mitigate risks inherent by shippers.

5.8.6.3 Risk mitigation

Coordinating the interests of all stakeholders is the most efficient risk mitigation strategy. Such a strategy can be achieved through implementing a degree of common shareholding across assets and projects, developing an integrated transportation system for allocating capacity rights and guaranteeing a fair allocation of economic rent between assets and projects. A combination of intergovernmental agreements and host government agreements may help mitigate the risks.

5.8.6.4 Financial objectives

It is worthwhile highlighting why KCTS sponsors are considering raising limited resource debt:

- limitations on their ability to fund their share on the balance sheet;
- willingness to transfer project risks to lenders.

A coordinated approach between sponsors and stakeholders is important for raising the necessary finance which promises to be an extremely complex task. Issues that sponsors should consider in structuring the KCTS project finance include:

- Recognizing that the KCTS is structurally precarious as it is "caught" between other projects.
- In order to cover risk allocation issues lenders will require security or sponsor support mechanisms.
- Following the financial crisis of 2008-09 the amount of debt available for large scale projects has been significantly reduced. In addition, conditions and terms imposed by lenders have deteriorated dramatically.

- Commercial banks are no longer in a position to provide large amounts of long term project loans and for emerging markets in particular, the project bond market is virtually closed;
- To structure the KCTS project sponsors may need potential trade-offs including equity stakes for investors (oil producers, lenders); the provision of guarantees over the safety of investment; offering share options if the company is profitable.
- Higher risk investments yield higher returns. Therefore financing by pure debt can mitigate project risks but may be expensive.
- In order to allow the project company to repay its debt, credit length should be realistic. According to Moody's (2010) the length of project financed loans is usually greater than 20 years.

5.8.7 Recommendations for the KCTS project

Based on the abovementioned risks and considerations the following are recommended:

- The evolution of a credible strategy for procuring and operating ships;
- Preparation of pre-completion corporate guarantees to lenders;
- Confirmation of oil volumes available and/ or dedicated to be shipped through KCTS;
- To service debt annual project cash flows should be set at a sufficient level: the establishment of a payment regime, development of transparent payment adjustment mechanisms, address credit risk of shippers and entities underwriting project economics;
- Be prepared for the possibility of cost overruns, force majeure and other contingencies, consider the arrangement of a credit line for additional funds 5%-15% from the projected amount of the project.
- Consider the possibility for shippers and investors owning an equity stake in the project. This will allow the project company to ensure the volumes will come through the pipeline as having their stake the shippers will be interested in the success of the project;
- Mitigate and hedge risks which are inherent in the project;
- Ensure unfettered access to one or several export routes from Azerbaijan;

- Acknowledge the interdependency and mutual dependence of all participants of the Trans-Caspian Transportation system; ensure a consistent approach to different elements of debt markets (expansion of Baku-Tbilisi-Ceyhan, Kashagan, Yeskene-Kuryk pipeline, TransCaspian system).

6 Conclusion

Project finance refers to the financing structure where a specially created project company (special purpose vehicle) is financed with non-recourse debt and equity from one or more sponsors with the goal of financing a single purpose project. The project company's assets act as collateral for the loan and the loan is repaid from the future cash flows of that project company. Project finance is often used to finance industrial projects such as oil fields, pipelines, mines and infrastructure projects. Recently, due to a growing demand for funds in emerging markets and a shrinking availability of investment capital, project finance has become an alternative option for industrial and infrastructure projects.

The main advantages of project finance are:

- It provides financing on a limited or non-recourse basis, where sponsors are relieved from their contractual obligations to service the debt in case of the project's default.
- Project finance allows higher gearing than traditional corporate lending. High gearing can reduce the cost of capital by lowering the costs of borrowing compared to the cost of equity and tax-deductible interest compared to taxable returns on equity.
- Project finance uses off-balance sheet accounting of project debt. This allows sponsors to undertake projects without damaging their creditworthiness or causing restrictions on borrowing.
- Project financing may authorise sponsors to escape restrictions under their contract or based on regulatory limitations.
- Project finance is an efficient tool for allocating risks among project participants. In corporate lending, concerns about a borrower's balance sheet may result in a refusal to loan. On the other hand, in project finance risks can be shifted to more credible sponsors through different structures. In corporate financing, the risks are carried by the company itself while in project finance the risks are borne by the lenders.

However, project finance is also time consuming and complex as risk allocation and security requires intensive negotiating and complicated legal procedures.

Capital in project finance can be raised through equity and debt. The proportion of debt in project finance deals can be as high as 60%-95%. Usually, lenders

require equity contributions from the sponsor company to ensure that the project will be successfully implemented. Equity in the project company may be issued through shares (common stocks) or as debt (bonds and other debt instruments). Equity claims may also be structured as convertible debt, so that the claim holder can convert debt claims into equity. Alternatively to capital contributions, sponsors can make subordinated loans to the project company as equity or a combination of subordinated loans and equity. Traditionally, debt finance could can be raised through mezzanine debt, senior debt and public market debt offerings. Mezzanine finance is attractive to project sponsors as it offers lower rates of repayment than equity and is relatively secure. Senior debt can be raised from commercial banks and multilateral lending agencies. Multilaterals can provide political risk protection as host governments will be incentivised to repay the debt in order to have access to international financial funds in the future. Large loans can be organised in a form of syndicated loans, which allows the lenders to spread their risks among the banks. Public debt markets enable project sponsors to access to a wider range of buyers. Additionally, it has less restrictive covenants than in the private market and longer-term fixed rate debt.

There are many risks integral to large projects among them are credit, construction, commercial, operations, political, currency risks. In order to make decisions about project financing, all of the project's potential risks should be considered as well as a financial feasibility study being undertaken prior to the beginning of a project.

The Eurotunnel and Azerbaijan Caspian Oil Fields case studies demonstrate the possible ways of structuring project finance deals and different schemes of project financing. The Eurotunnel case shows the cost overrun and economic risks that accompany large, ambitious transportation projects and highlights the financial problems that can accompany high leverage. The Azerbaijan Caspian Oil Fields case demonstrate how large projects can be financed; what kind of options a company may have in defining the financing methods and what consequences financing decisions can have on the whole project.

The Kazakhstan Caspian Transportation System case study provides an overview of the current situation in project finance in emerging markets, particularly, in the Kazakhstan oil and gas sector. Although there are many

industrial projects in Kazakhstan, project finance is not as common there as in developed countries due to an imperfect legislative basis and weak financial markets. Limited domestic alternatives to raising long-term capital have led Kazakhstani banks to be over reliant on foreign borrowing. That has resulted in high rates of lending making Kazakhstan companies seek their funds from foreign financial institutions. Despite the significant financial and political risks of the KCTS project, several international financial institutions are interested in providing their financial services, among them are multilateral lending agencies and commercial banks.

The key issues that project sponsors should consider before structuring finance for KCTS are:

- As KCTS is supposed to create a transport system which will deliver crude oil mainly from the Kashagan oil field to world markets via the Baku-Tbilisi-Ceyhan pipeline, it makes KCTS vulnerable to the risks internal to the Kashagan project, Baku-Tbilisi-Ceyhan and other interrelated systems.
- Providers of funds will require security or sponsor support mechanisms to cover any risk allocation issues, which will limit risks transfer.
- The amount of debt available for large scale projects has been significantly reduced after the financial crisis of 2008-2009, while conditions and terms imposed by lenders have dramatically worsened.
- Commercial banks are not willing to provide vast amounts of long term project loans;
- Project sponsors may need to be more flexible in structuring the KCTS project. For example, considering the possibility of offering equity stakes for investors (oil producers, lenders); offering options to buy shares if the company is profitable.
- Financing by pure debt can mitigate project risks but may be expensive as higher risk investments expect higher returns.
- Credit length should be realistic in order to allow the project company to repay the debt.

Based on the risks and considerations of the KCTS project the following recommendations are relevant:

- Development of a strategy to guarantee oil volumes to be shipped through KCTS in order to secure revenues and consequently debt servicing;
- Set annual project cash flows at a level sufficient to service debt: establish a payment regime, develop transparent payment adjustment mechanisms, address the credit risk of shippers;
- Be prepared to provide corporate guarantees to lenders;
- Have funds available in case of cost overruns, force majeure and other contingencies;
- Consider the possibility for shippers and investors to have equity stakes in the project;
- Mitigate and hedge all risks which are inherent in the project;
- Ensure unfettered access to export routes from Azerbaijan;
- Acknowledge the interdependency between all participants of the Trans-Caspian Transportation system.

In overall, the answer to how large infrastructure projects can be financed and what possible financial structures could be adopted in such projects depends on several aspects of the project: risks, political issues, the sponsor company's stance, the financial and political situation in the host country and the linkages between the infrastructure projects and other stakeholders such as the host government, oil shippers, oil fields and lenders.

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